

No.

200700410



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Michigan State University

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR PROPAGATING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BEAN, FIELD

'Sedona'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this seventh day of April, in the year two thousand and eight.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

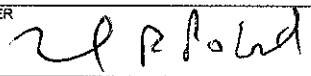
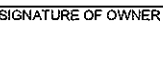
Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER Michigan State University		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME S00809	3. VARIETY NAME Sedona
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) Executive Director, Office of Intellectual Property Michigan State University 2727 Alliance Drive Lansing, MI 48910		5. TELEPHONE (include area code) (517) 355-2186	FOR OFFICIAL USE ONLY PVPO NUMBER #200700410 FILING DATE AUGUST 14, 2007
		6. FAX (include area code) (517) 432-3880	
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) Michigan constitutional corporation	8. IF INCORPORATED, GIVE STATE OF INCORPORATION	9. DATE OF INCORPORATION	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Michigan State University Office of Invention and Copyright 2727 Alliance Drive Lansing, MI 48910			FILING AND EXAMINATION FEES: \$ 3652 + 730.00 DATE 7/30/07 + 2/08/08 CERTIFICATION FEE: \$ 768.00 DATE 2/08/2008
11. TELEPHONE (include area code) (517) 355-2186	12. FAX (include area code) (517) 432-3880	13. E-MAIL	
14. CROP KIND (Common Name) Pink bean	16. FAMILY NAME (Botanical) Fabaceae	18. DOES THE VARIETY CONTAIN ANY TRANSGENES? (OPTIONAL) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERCIALIZATION.	
15. GENUS AND SPECIES NAME OF CROP Phaseolus vulgaris L.	17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		
19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input type="checkbox"/> Filing and Examination Fee (\$3,652), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)		20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? (See Section 63(a) of the Plant Variety Protection Act) <input checked="" type="checkbox"/> YES (If "yes", answer items 21 and 22 below) <input type="checkbox"/> NO (If "no", go to item 23) 21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input checked="" type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED 22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input checked="" type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)	
23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.) MAY 12/10/2007		24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)	

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER 		SIGNATURE OF OWNER 	
NAME (Please print or type) Michael R. Poterala		NAME (Please print or type) Michael R. Poterala	
CAPACITY OR TITLE Executive Director	DATE 6-26-07	CAPACITY OR TITLE Executive Director	DATE

(See reverse for instructions and information collection burden statement)

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$3,652 (\$432 filing fee and \$3,220 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. **Retain one copy for your files.** All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvpo/pvpindex.htm>

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and provide evidence that name has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, 10301 Baltimore Avenue, Suite 401 NAL Building, Beltsville, MD 20705. Telephone: (301) 504-5682 <http://www.ams.usda.gov/lsg/seed.htm>.

ITEM

- 19a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
20. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
23. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
24. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

22. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

Foundation class seed may be multiplied five generations from breeder's seed; Certified class seed may be multiplied one generation from Foundation seed.

23. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

Certified class seed of Sedona pink beand is scheduled for sale May 2007

24. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

EXHIBIT A - ORIGIN AND BREEDING HISTORY OF S00809 PINK BEAN

- Winter 1994* Original cross 94R714 was made in the greenhouse in E. Lansing, MI. Parentage: X94076/R94142
X94076 is a pink bean breeding that originates from the cross: 55012// X89402/X89405. Breeding line 55012 from the University of Idaho was the source of the pink seed color and the X89402 and X89405 were small red seeded upright breeding lines from MSU breeding program. R94142 was an upright small red breeding line from USDA-ARS program at MSU.
F₁ plants (95A714) were grown and selfed in the greenhouse in E. Lansing, MI during spring 95 and no selection was practiced in this generation.
- Summer 1995* Single plant selection no. 2 was made in F₂ nursery (95L-713) at Saginaw MI on the basis of agronomic and pink bean seed traits. Traits selected included: upright type II growth habit, short vine development, lodging resistance, mid-season maturity and uniform dry down. Seed color and size traits were selected as acceptable commercial pink bean seed class.
- Summer 1996* A single F_{2:3} progeny row (96T-4156) was grown and single plant selection no. 2 was selected for seed and agronomic traits at Saginaw, MI. Traits selected included upright short vine, lodging resistance, good pod load, pink bean seed size and color, and freedom from diseases.
- Summer 1997* A single F_{3:4} progeny row (97T-4147) was grown and mass selected at Saginaw, MI for upright architecture, lodging resistance, acceptable pod load and placement, uniform mid-season maturity, and commercial pink bean seed traits.
- Summer 1998* A single F_{3:5} progeny row (98T-4211) was grown and mass selected at Saginaw MI on the basis of agronomic and seed traits, similar to those described in the F₄ generation.
- Summer 1999* A single F_{3:6} progeny row (99T-4016) was grown and mass selected at Saginaw MI on the basis of agronomic and seed traits, similar to those described in the F₅ generation.
- Summer 2000* A F_{3:7} breeding line coded 94R714-02-04-01 entered replicated yield trials at Saginaw, MI with the permanent code number S00809. Canning tests were initiated. The line was advanced based on superior yield performance, upright architecture and excellent canning quality.
- Summer 2001-04* Over five years of testing breeding line S00809 was advanced from F₇ to F₁₁ generation, and yield tested at 24 locations in mid-Michigan.
- Winter 2005* Based on continued superior yield, upright architecture, mid-season maturity, disease resistance and canning quality, **S00809** is being proposed for release under the variety name **SEDONA**.

EXHIBIT A -**UNIFORMITY AND STABILITY (Cont.)**

Uniformity and Stability: Since initially selected, the cultivar SEDONA is uniform and stable within commercially acceptable limits and breeds true to type. SEDONA is maintained through pure-line selection and has been monitored for five generations from the F₇ to F₁₁ generation. During this time, SEDONA has been uniform and stable, with no variants observed.

EXHIBIT B -**STATEMENT OF DISTINCTNESS:**

Distinctness: SEDONA is most similar to the pink bean Rosa, but differs in that SEDONA exhibits an upright indeterminate type II growth habit (Singh, 1982); whereas Rosa has a prostrate type III growth habit.

Reference: Singh, S.P. 1982. A key for identification of different growth habits of *Phaseolus vulgaris* L. Annu. Rept. Bean Improv. Coop 25:92-95.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Field Bean (*Phaseolus vulgaris* L.)

NAME OF APPLICANT (S) Michigan State University	TEMPORARY OR EXPERIMENTAL DESIGNATION S00809	VARIETY NAME Sedona
ADDRESS (Street and No. or RD No., City, State, Zip Code, and Country) Michigan State University Office of Intellectual Property 246 Administration Bldg. East Lansing, MI 48824		FOR OFFICIAL USE ONLY PVPO NUMBER #200700410

PLEASE READ ALL INSTRUCTIONS CAREFULLY:

Provide data for all characters unless indicated as "optional". Place numbers in the boxes for the characters or numerical values that best describe this variety. Measured data should be the mean of an appropriate number of well spaced (15-20 cm) plants. The Royal Horticultural Society or any recognized color standard may be used to determine plant color. Designate the color system used below.

COLOR SYSTEM USED:	LOCATION OF THE TEST(S) TO EVALUATE THIS VARIETY: Saginaw Michigan																																								
1. MARKET CLASS: <table border="1"> <tr> <td>0</td> <td>7</td> </tr> </table> <table border="1"> <thead> <tr> <th>CLASS</th> <th>CHECK</th> </tr> </thead> <tbody> <tr><td>1 = Navy (Pea)</td><td>Seafarer</td></tr> <tr><td>2 = Small White</td><td>Aurora</td></tr> <tr><td>3 = Black</td><td>Midnight</td></tr> <tr><td>4 = Pinto</td><td>UI-114</td></tr> <tr><td>5 = Great Northern</td><td>UI-59</td></tr> <tr><td>6 = Small Red</td><td>NW-59</td></tr> <tr><td>7 = Pink</td><td>Viva</td></tr> <tr><td>8 = Cranberry</td><td>UI-50</td></tr> <tr><td>9 = Dark Red Kidney</td><td>Montcalm</td></tr> <tr><td>10 = Light Red Kidney</td><td>Redcloud</td></tr> <tr><td>11 = Yellow Eye</td><td>Steuben</td></tr> <tr><td>12 = Other (Specify)</td><td></td></tr> </tbody> </table>	0	7	CLASS	CHECK	1 = Navy (Pea)	Seafarer	2 = Small White	Aurora	3 = Black	Midnight	4 = Pinto	UI-114	5 = Great Northern	UI-59	6 = Small Red	NW-59	7 = Pink	Viva	8 = Cranberry	UI-50	9 = Dark Red Kidney	Montcalm	10 = Light Red Kidney	Redcloud	11 = Yellow Eye	Steuben	12 = Other (Specify)		2 = MATURITY: <table border="1"> <tr> <td>2</td> <td>1 = Early (80-90 days) 2 = Medium (90-100 Days) 3 = Late (> 100 Days)</td> </tr> </table> <table border="1"> <tr> <td>9</td> <td>3</td> <td>Days from Planting to Harvest Maturity</td> </tr> </table> <table border="1"> <tr> <td></td> <td></td> <td></td> <td>Heat Units from Planting to Harvest Maturity (Optional). Specify Base Temperature Used: _____</td> </tr> </table> <table border="1"> <tr> <td>8</td> <td>9</td> <td>Days from Planting to Harvest Maturity of Check Variety (Use Check Appropriate to Market Class Shown in Item 1)</td> </tr> </table>	2	1 = Early (80-90 days) 2 = Medium (90-100 Days) 3 = Late (> 100 Days)	9	3	Days from Planting to Harvest Maturity				Heat Units from Planting to Harvest Maturity (Optional). Specify Base Temperature Used: _____	8	9	Days from Planting to Harvest Maturity of Check Variety (Use Check Appropriate to Market Class Shown in Item 1)
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3. PLANT HABIT:

4	TYPE	4	8	Average Height of Mature Plant, in cm.
1 = Ia Bush-determinate, Strong and Erect Stem and Branches		3	5	Average Height of Check Variety, in cm. (Use Same Check as Above)
2 = Ib Bush-determinate, Weak Stem and Branches		3		Pod Position: 1 = Low (Lower Pods Touching Soil Surface) 2 = High (Lower Pods not Touching Soil Surface) 3 = Scattered (Not Concentrated High or Low)
3 = IIa Erect Growth Habit-indeterminate, Guides (Runners) short or not developed		1		Adaptability to Machine Harvest: 1 = Adapted 2 = Not Adapted
4 = IIb Erect Growth Habit-indeterminate, Guides Medium to Long, with no Ability to Climb		2		Lodging Resistance: 1 = Good 2 = Fair 3 = Poor
5 = IIIa Vine-indeterminate, Short Guides with no ability to Climb				
6 = IIIb Vine-indeterminate, Long Guides with Ability to Climb				
7 = IVa Indeterminate Climbing, Pods Distributed Throughout the Plant				
8 = IVb Indeterminate Climbing, Pods Concentrated on the Upper Part of the Plant				

4. LEAFLET MORPHOLOGY: (Use terminal Leaflet of a Fully Expanded Trifoliate)

☐ 1 = Smooth 2 = Wrinkled ☐ 1 = Dull 2 = Glossy 3 = Semiglossy 4 = Variable

Shape:

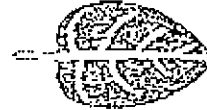
1 = Ovate

2 = Lanceolate

3 = Deltoid

4 = Cordate

5 = Rhomboid

☐ 1

Apex of Leaflet:

1 = Acute

2 = Acuminate

3 = Cuspidate

4 = Obtuse

☐ 2

Base of Leaflet:

1 = Obtuse

2 = Oblique

3 = Cordate

4 = Cuneate

5 = Attenuate

☐ 1**5. FLOWER COLOR AND DAYS TO BLOOM:**☐ 1

Color of Standard:

1 = White

2 = Cream

3 = Pink

4 = Blue

5 = Purple

☐ 3

Color of Keel:

1 = White

2 = Cream

3 = Pink

4 = Blue

5 = Purple

☐ 1

Color of Wings:

1 = White

2 = Cream

3 = Pink

4 = Blue

5 = Purple

☐ 4 ☐ 2

Days to 50% Bloom

6. POD MORPHOLOGY: (Green Pod Morphology Optional)

Green Mature

☐☐ 1

Color Pattern:

1 = Solid

2 = Striped

3 = Blotched

4 = Mottled

5 = Other _____

☐☐ 5

Primary Color:

1 = Purple

2 = Red

3 = Green

4 = Yellow

5 = Tan

6 = Brown

7 = Other _____

☐☐ 2

Color Modifier:

1 = Light

2 = Light Medium

3 = Medium

4 = Medium Dark

5 = Dark

☐☐

Secondary Color:

1 = Purple

2 = Red

3 = Green

4 = Yellow

5 = Tan

6 = Brown

7 = Other _____

☐☐ 2

Cross Section Shape:

1 = Flat

2 = Pear

3 = Round

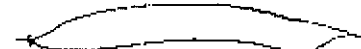
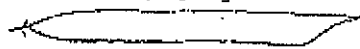
4 = Figure Eight

☐☐ 2

Pod Curvature:

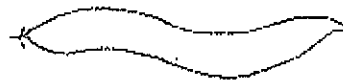
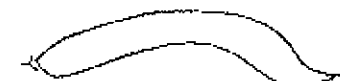
1 = Straight

2 = Slightly Curved



3 = Curved

4 = Recurved

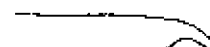
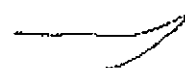
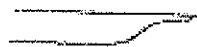
☐☐ 3

Pod Beak Orientation:

1 = Straight

2 = Curved Upward

3 = Curved Downward

4 = Variable
Average Beak Length,
in cm. _____☐☐ 2

Constrictions:

1 = None

2 = Slight

3 = Deep






☐ 5☐ 4

Average Number of Seeds per Pod

7. SEED COLOR:

<input type="checkbox"/> 3	1 = Shiny	2 = Dull	3 = Semi-shiny	4 = Variable	<input type="checkbox"/> 1	1 = Monochrome	2 = Polychrome
<input type="checkbox"/> 6	Primary Color: 1 = White 2 = Yellow 3 = Buff 4 = Tan 5 = Brown 6 = Pink 7 = Red 8 = Purple 9 = Blue 10 = Black 11 = Other				<input type="checkbox"/>	Secondary Color: 1 = White 2 = Yellow 3 = Buff 4 = Tan 5 = Brown 6 = Pink 7 = Red 8 = Purple 9 = Blue 10 = Black 11 = Other	
<input type="checkbox"/> 1	Color Pattern: 1 = Solid 2 = Splashed 3 = Mottled 4 = Striped 5 = Flecked 6 = Dotted				<input type="checkbox"/> 2	Hilar Ring: 1 = Absent 2 = Present	
<input type="checkbox"/> 4	Hilar Ring Color: 1 = White 2 = Yellow 3 = Buff 4 = Tan 5 = Brown 6 = Pink 7 = Red 8 = Purple 9 = Blue 10 = Black 11 = Other						

8. SEED SHAPE AND WEIGHT:

<input type="checkbox"/> 3	Shape of Seed Taken From Middle of Pod:	1 = Round	2 = Oval	3 = Cuboid	4 = Kidney	5 = Truncate Fastigate
						
<input type="checkbox"/> 36	Dry Seed Weight in g/100g Seeds (Adjusted to 12% Moisture)					

9. ANTHOCYANIN PIGMENTATION:

1 = Absent 2 = Present	<input type="checkbox"/> 1 Flowers	<input type="checkbox"/> 2 Stems	<input type="checkbox"/> 2 Pods	<input type="checkbox"/> 2 Seeds
	<input type="checkbox"/> 1 Leaves	<input type="checkbox"/> 1 Petioles	<input type="checkbox"/> 1 Peduncles	<input type="checkbox"/> 1 Nodes

10. KNOWN DISEASE REACTION:

DISEASES – COMMON NAME: Anthracnose, Rust, Powdery Mildew, Fusarium Root Rot, Pythium Root Rot, Rhizoctonia Root Rot, Pythium Wilt, Sclerotinia White Mold, angular Leaf Spot, Bacterial Wilt, Halo Blight, Fuscos Blight, Common Bacterial Blight, Red Node Virus, Pod Mottle Virus, Bean Common Mosaic Virus, Bean Yellow Mosaic Virus, Curly Top Virus, Bacterial Brown Spot, Bean Southern Mosaic Virus, Other (Specify) _____

Reaction: 1 = Susceptible 2 = Resistant 3 = Tolerant 4 = Avoidance

(Give the Common Name (CN), Scientific Name (SN), and Race(s), Where Applicable)

<input type="checkbox"/> 2	Disease: CN <u>Rust</u> ; SN <u>Uromyces appendiculatus</u> ; Race(s) <u>Michigan isolates</u> ;
<input type="checkbox"/> 2	Disease: CN <u>Bean Common Mosaic Virus</u> ; SN <u>BCMV</u> ; Race(s) <u>NL-1, NL-2, NL-7</u> ;
<input type="checkbox"/> 1	Disease: CN <u>Common Bacterial Blight</u> ; SN <u>Xanthomonas campestris</u> ; Race(s) <u>Michigan isolates</u> ;
<input type="checkbox"/> 4	Disease: CN <u>White Mold</u> ; SN <u>Sclerotinia sclerotiorum</u> ; Race(s) <u>Michigan isolates</u> ;
	Disease: CN _____; SN _____; Race(s) _____;
	Disease: CN _____; SN _____; Race(s) _____;

11. KNOWN INSECT/NEMATODE RESISTANCE:

PESTS – COMMON NAME: Aphids, Bean Pod Weevil, Bruchid Beetle, Corn Earworm, Flea Beetle, Leaf Hopper, Lesion Nematode, Lygus, Mexican Bean Beetle, Root Knot Nematode, Corn Seed Maggot, Spider Mites, Thrips, Weevils, Western Bean Cutworm, Other (Specify) _____

Reaction: 1 = Susceptible 2 = Resistant 3 = Tolerant 4 = Avoidance

(Give the Common Name (CN), Scientific Name (SN), and Race(s), Where Applicable)

<input type="checkbox"/>	Pest: CN _____; SN _____; Race(s) _____;
<input type="checkbox"/>	Pest: CN _____; SN _____; Race(s) _____;
<input type="checkbox"/>	Pest: CN _____; SN _____; Race(s) _____;

12. KNOWN PHYSIOLOGICAL STRESS REACTION:

1 = Susceptible 2 = Resistant ☐ Heat ☐ Cold ☐ Drought ☐ Air Pollution
3 = Tolerant 4 = Avoidance

13. **COMMENTS:** Sedona carries the *bc-1²* gene for resistance to specific strains of Bean Common Mosaic Virus

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) Michigan State University	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER S00809	3. VARIETY NAME Sedona
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) 2727 Alliance Drive Lansing, MI 48910	5. TELEPHONE (Include area code) (517) 355-2186	6. FAX (Include area code) (517) 432-3880
7. PVPO NUMBER		#200700410

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain. ☒ YES ☐ NO9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country. ☒ YES ☐ NO10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☒ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT F
DECLARATION REGARDING DEPOSIT

NAME OF OWNER (S) Michigan State University	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) East Lansing, MI 48824	TEMPORARY OR EXPERIMENTAL DESIGNATION S00809
NAME OF OWNER REPRESENTATIVE (S) Michael R. Poterala Executive Director Office of Intellectual Property	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) East Lansing, MI 48824	VARIETY NAME Sedona FOR OFFICIAL USE ONLY PVPO NUMBER #200700410

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Signature

Date

Michael R. Poterala

8-3-2007

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